

REMARKS

By this amendment claims 1, 9, 13, and 16 have been amended. Accordingly, claims 1-22 remain pending in this application. No new matter has been added. Applicant requests the prompt re-examination and allowance of this application.

Anticipation Rejections

In the Office Action mailed April 20, 2005, claims 1-22 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,708,101 to Hara et al. ("Hara"). Applicant respectfully traverses this rejection. A proper anticipation rejection requires each and every element set forth in the claim to be found in a single prior art reference. See MPEP § 2131. The anticipation rejection set forth in the Office Action does not properly establish that each and every claimed element is disclosed in Hara.

Hara discloses in Figs. 8(A) to 10 and line 34 of column 4 to line 36 of column 5, a driving apparatus for an engine valve including a driving cam 13 fixed to a cam shaft 14, a rocker arm 15, one end of which contacts the driving cam 13 and the other end of which engages an intake valve 12. Hara also discloses a lever 16 which and engages a control cam 17 and contacts the back surface of the rocker arm 15 to create a fulcrum. During operation of the driving apparatus, rotation of the driving cam 13 pivots the rocker 15 about the fulcrum to lift the intake valve 12. Rotation of the control cam 17 moves the lever 16 to adjust the position of the fulcrum. Adjusting the position of the fulcrum serves to vary the amount of displacement of the rocker arm 15 as caused by the driving cam 13 and thus affects the extent of movement of the intake valve 12.

Hara further discloses in lines 60 to 62 of column 4, a phase control unit 23 for controlling the phase of rotation of the driving cam 13 to thereby advance or delay the

phase (i.e., the timing from a close position to an open position to a subsequent close position) of the intake valve 12 relative to the position of a piston. That is, Hara discloses adjusting the rotational phase of driving cam 13 to adjust when the intake valve 12 cycles a phase relative to a piston position, e.g., top dead center (TDC), of a piston. See e.g., Figs. 12 to 13 and line 24 of column 6 to line 39 of column 7 of Hara.

Regarding independent claim 1, Hara fails to disclose a valve actuation system comprising an engine valve moveable between a first position and a second position, a cam follower having a fixed pivot, a first cam adapted to move the cam follower to move the engine valve from the first position to the second position during a first lift period, a second cam adapted to affect movement of the engine valve between the first position and the second position during a second lift period, and a phase shifting device operatively connected to the second cam to adjust the relative timing between the first lift period and the second lift period. Because Hara discloses that the fulcrum of rocker arm 15 moves, Hara does not disclose a cam follower having a fixed pivot as recited in independent claim 1. As such, Applicant submits that independent claim 1 is allowable for at least this reason. Claims 2-8 depend from claim 1 and are also allowable for this reason as well as for their additional features.

Regarding independent claim 9, Hara fails to disclose a method of actuating an engine valve between a first position at which the engine valve prevents a flow of fluid relative to the engine valve and a second position at which fluid flows relative to the engine valve including rotating a first cam to move the engine valve from a first position to a second position during a first lift period, rotating the second cam to engage a rocker arm to thereby affect movement of the valve between a first position and the second

position during a second lift period, and adjusting a rotational phase of the second cam to thereby adjust the relative timing between the first lift period and the second lift period so that the first lift period affects movement of the engine valve from the first position to the second position and the second lift period affects movement of the engine valve from the second position to the first position as recited in independent claim 9. Because Hara merely discloses adjusting the phase (i.e., open and close timing) of the intake valve 12 relative to a piston position (e.g., adjusting the phase to occur before or after a particular piston position), Hara does not disclose adjusting the timing between the first lift period and the second lift period so that the first lift period affects movement of the engine valve from the first position to the second position and the second lift period affects movement of the engine valve from the second position to the first position as recited in independent claim 9. As such, Applicant submits that claim 9 is allowable for at least this reason. Claims 10-12 depend from claim 9 and are also allowable for this reason as well as for their additional features.

Regarding independent claim 13, Hara fails to disclose a valve actuation system comprising an engine valve, a cam follower having a pivot operatively connected to the engine valve, a first cam adapted to engage the cam follower and rotate the cam follower in a first direction about the pivot, and a second cam adapted to engage the cam follower and rotate the cam follower in a second direction opposite the first direction about the pivot as recited in independent claim 13. Because Hara discloses that the control cam 17 moves the lever 16 to adjust the position of the fulcrum established between the lever 16 and the rocker arm 15, control cam 17 does not rotate the rocker arm about the pivot as recited by independent claim 13. It is noted that even

if the control cam 17 and the lever 16 are characterized as the second cam as set forth in the Office Action, the control cam and the lever also do not rotate the rocker arm about the pivot as recited in independent claim 13. As such, Applicant submits that independent claim 13 is allowable for at least this reason. Claims 14 and 15 depend from claim 13 and are also allowable for this reason as well as for their additional features.

Regarding independent claim 16, Hara fails to disclose an engine including an engine valve, a cam follower, a first cam adapted to engage the cam follower such that rotation of the first cam acts to move the engine valve from a first position to a second position during a first lift period, a second cam adapted to selectively engage and disengage the cam follower such that the rotation of the second cam acts to affect the movement of the engine valve from the first position to the second position during a second lift period, and a phase shifting device adapted to adjust the relative timing between the engagement and disengagement of the second cam and the cam follower to affect the timing between the first lift period and the second lift period as recited in independent claim 16. Because Hara discloses that the control cam 17 does not engage the rocker arm 15 and discloses that lever 16 always engages the rocker arm 15, neither the control cam 17, nor the lever 16, nor the control cam 17 in conjunction with the lever 16 as characterized as the second cam as set forth in the Office Action, selectively engage and disengage the rocker arm 15 to affect the timing between the first lift period and the second lift period as recited by independent claim 16. As such, Applicant submits that independent claim 16 is allowable for at least this reason.

Claims 17-22 depend from claim 16 and are allowable for at least this reason as well as for their additional features.

Conclusion

Upon review of claims 1 and 9, Applicant has amended those claims to correct minor typographical errors. Specifically, in line 2 of claim 1, --the-- has been inserted before the second occurrence of "engine valve" and in line 6 of claim 9, "the" has been changed to --a--.

In view of the above, Applicant respectfully submits that claims 1-22 are in condition for allowance. Accordingly, Applicant respectfully requests reconsideration and re-examination of this application and timely allowance of the claims 1-22.

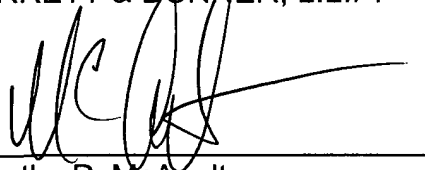
The Office Action contains characterizations of the claims and the related art, with which Applicant does not necessarily agree. Unless expressly noted otherwise, Applicant declines to subscribe to any statement or characterization in the Office Action.

If the Examiner believes a telephone conversation might advance prosecution, the Examiner is invited to call Applicant's undersigned representative at 202-408-4397

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account no. 06-0916.

Respectfully submitted,
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Dated: August 22, 2005

By: 
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